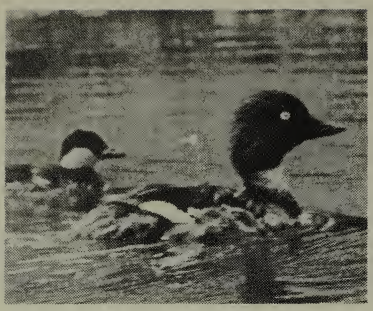
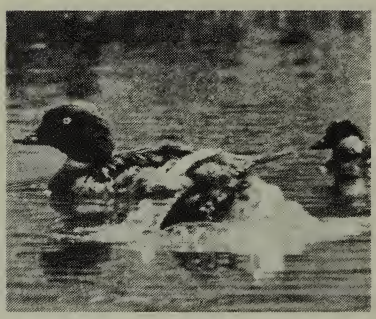


Ontario fish and wildlife Review

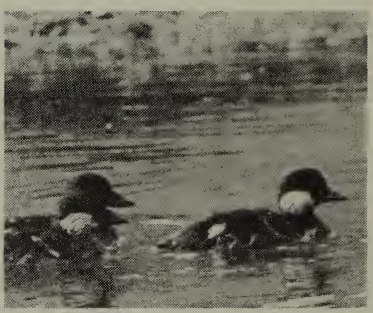
Vol. 16, No. 3, 1977



Three features on ducks this issue. A research team led by Harry Lumsden presents some new material on goldeneyes and associated species in the north.



Ross Snider details the rescue of oiled ducks and offers recommendations which may interest volunteer groups.



Duck lovers may also note the simple instructions of Bill Grieve on the care of wild ducklings.

The raptor on Page 22 and the cover of the Summer issue was not a goshawk but (sob) a young gyrfalcon. Apologies to all.

Cover hunting scene by Laurel Whistance-Smith and fishing shot by Allan Wainio.

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Editorial committee: F. P. Maher, J. L. Tiller, A. A. Wainio and L. Whistance-Smith.

The goal of the Ministry of Natural Resources is to provide opportunities for outdoor recreation and resource development for the continuous social and economic benefit of the people of Ontario, and to administer, protect and conserve public lands and waters.

Ontario

Ministry of Natural Resources

Hon. Frank S. Miller
Minister

Dr. J.K. Reynolds
Deputy Minister

5635

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EDITORIAL

MOOSE STRATEGY

Ontario experienced a sharp increase in the number of moose hunters between 1971 and 1974 – from 63,200 to a peak of 92,200. By 1974 the increased hunting pressure, combined with a deterioration in moose habitat, had resulted in a decline in moose numbers particularly in the areas easily accessible to hunters.

After the 1972 season the Ministry of Natural Resources began to plan new moose policy to restore reduced populations and distribute the harvest more evenly across the north.

By March of 1975 an intensified moose program was under way. Northern Ontario was divided into 42 wildlife management units, later increased to 45, each unit to be managed on a local basis in the best interests of the local moose herd and local hunting. The unit boundaries are lakes, rivers, roads and other features easily recognized on the ground.

The moose program has been intensified to help moose populations reach the current potential of their range by reducing the harvest. The second step of the program is to raise the potential of the range. This necessitates improving the quality of habitat produced by forestry practices. At the same time we must continue to regulate the annual moose harvest and to improve techniques for evaluating moose density. All these measures are aimed at increasing the recreational and economic benefits from moose.

In 1975 the Ministry opened the seasons later and closed them earlier, placing the hunting season between the rut and snowfall in critical areas. This, together with an increase in non-resident licence fees, accomplished our immediate purpose – fewer moose were taken.

The strategy was refined in 1976 by setting the opening dates in mid-week and by shortening the season further in some areas. Because of these changes, the number of hunters declined to 83,440 and the harvest was reduced from 13,910 in 1974 to 10,870 in 1976. In 1977 the moose season in critical areas was even shorter and opened even later than in 1976.

The Opasatika Lake provincial moose management demonstration area was established last year in Kapuskasing and Hearst Districts to investigate methods of licence distribution, limitation of harvest and other techniques.

In 1976 the moose hunt provided 598,600 days of recreation. It enriched the province through licence sales and boosted the northern economy by more than $20 million.

The results of the program to date appear encouraging. Its lasting success will depend on the continuing support of the public.

INTROSPECT

A personal opinion
not necessarily endorsed by
the Ministry of Natural Resources

A BLIGHT OF BLACKBIRDS

by R. M. Alison
Waterfowl Biologist, Wildlife Branch

It is curious that we, in North America, have assumed that the red-winged blackbird has become more abundant in recent years due to agricultural practices. This may not be the case. In fact, the earliest North American references suggest the species was abundant early in the seventeenth century at a time when Indian agriculture was restricted.

Father Sagard, describing that part of Ontario currently known as Huronia, recorded in 1632 "The wild geese and blackbirds ... come to eat the corn at seed time and when it is ready to harvest. They (the Hurons) made great complaints to us (the Jesuits) about it and asked how to prevent it. . . ."

The problem of crop depredation by blackbirds was not confined to Ontario. In 1656, Adriaen Van der Donck, in describing New Netherlands, noted "(red-winged) blackbirds, to which the people have given an appropriate name, calling them corn thieves, to which they have a strong propensity, are very plenty. I have been informed by men of veracity, that Jacob van Curter had killed one hundred and seventy ... at a shot." Many similar reports of early blackbird abundance in the eastern United States exist.

In thirteenth century Mexico, Aztec children (all males of 14 to 15 years of age) were given the task of preventing crop loss by blackbirds. This they accomplished through the use of 'throwing sticks' and other such instruments. Although red-winged blackbirds may have responded numerically to currently favourable agricultural activities, these revelations suggest the species was quite successful prior to the conversion of much of North America into agricultural (specifically grain-producing) land. This, of course, raises the question as to whether changes in agricultural practices would indeed produce a concomitant decrease in the blackbird population.



Red-winged blackbird. —Photo by Wm. Lanning

LETTERS IN REVIEW

Readers of 'Review'
are invited to set forth
their views in these columns

SWAN DIETS

The report on whistling swans by R. J. Wenting in the Spring issue contains some interesting although unsubstantiated statements on changes in the feeding behavior of swans.

The phenomenon of swans commonly feeding in corn stubble in southern Ontario has occurred rather recently, yet I know of no studies or information that can relate deficiencies in the marshes of Lakes Erie and St. Clair to the observed change.

On the contrary, the elevated water levels on these lakes have eliminated dense stands of cattail which have been replaced by large beds of submergent vegetation which presumably contain the natural foods swans prefer. But the lack of detailed studies concerning the diets of swans should reduce statements about 'normal diet' and being 'forced to field feed' to speculation.

It may be equally valid to speculate that, in the very wet springs of the 1960s, the swans found it difficult in the Lake St. Clair vicinity to differentiate between what was marsh and what was flooded stubble field, and simply found in the flooded fields a new 'marsh diet' that was very much to their liking.

J. M. Collins
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Aurora, Ontario L4G 1V6

ENDANGERED SPECIES SPECIAL

The next 'Review' will be devoted to endangered species, their present status and their future prospects. Watch for the Winter issue with up-to-date information on endangered, threatened and vulnerable species in Ontario. You may be in for a few surprises.



Canvasbacks, one of the species successfully treated after oil pollution.

SUCCESSFUL RESCUE OF OILED DUCKS

by Ross Snider
Niska Waterfowl Research Centre

ON the morning of February 2, 1976, the Niska Waterfowl Research Centre near Guelph received a call reporting an oil spill on the St. Clair River, several miles south of Sarnia. Knowing a considerable number of waterfowl often winter in this area, we contacted the company responsible for the spill and asked for additional information. We learned the oil was bunker C and the number of birds affected was still unknown. Several people in Sombra had rescued oiled ducks and arrangements were being made for their transportation.

On February 4, 23 ducks were delivered to Niska. They included 15 canvasback, *Aythya valisineria*, six redhead, *Aythya americana*, and two greater scaup, *Aythya marila mariloides*. The oil on these birds was minimal, mostly small patches on the breast and abdominal areas and around the legs. Unfortunately, only one container had been used in transporting the birds and the close crowding had resulted in all the birds being covered with a film of oil.

Due to the severe cold and ice conditions on the St. Clair River, it had been necessary to chop the ducks free from the ice and in the process the breast feathers and some other feathers were unavoidably plucked out. Most of the birds were otherwise in good condition.

If capture had been delayed by open water or other factors, the physical condition of the ducks would have gradually worsened. Oil-damaged plumage hampers feeding and results in eventual death by starvation and exposure, and possibly by oil ingestion from prolonged preening of oiled areas.

Upon arrival at Niska, the ducks were placed in a 9′ x 14′ room with three inches of wood shavings on the floor. Water dishes were provided (not large enough for the birds to immerse themselves) and these were placed on metal trays to catch food and water spilled by the ducks when feeding. Corn, wheat and some coarse grit were placed in the water dishes and in two dry dishes.

The birds preferred the water-immersed food to the dry feed and quickly adapted to the new feeding situation. It was necessary to clean and refill the dishes twice daily for hygenic reasons.

Washing was delayed until February 7 when we were able to obtain five gallons of Polycomplex A-11 from a chemical company in



A needless loss. Oil-polluted ducks can be saved. Photo by R. M. Alison.

Toronto. This chemical was highly recommended by several agencies as being very efficient and fairly harmless to plumage.

The Polycomplex A-11 was mixed one part to 100 parts of water and water was kept as hot as we felt the ducks could comfortably stand. The birds were washed in a gallon pail and the water was changed after three to four birds.

Holding the bird by the body joints of both wings, each duck was immersed in the gallon pail and "swished" back and forth. Feathers were fluffed by hand on areas where the oil was more concentrated. The actual washing time was usually from two to four minutes, depending on the amount of oil on the bird. With the exception of four birds, one washing was sufficient and seemed to cause little feather damage.

After washing, the birds were rinsed in a large sink of water, the same temperature as the wash water. This was changed as necessary. After rinsing, the birds were placed in a small cardboard box and carefully rubbed down with a dry towel aided by a hair dryer.

After four to five minutes of drying by this method, they were placed in a 3′ x 4′ wire cage under a heat lamp, making sure the lamp was about three feet above the birds and not too hot for them. The cage was large enough to allow four to five birds to dry together. It is important to allow seclusion when drying so the birds can preen undisturbed and not damage themselves fighting the wire cage.

When the ducks were sufficiently dry, usually in 15 to 20 minutes, they were removed from the cage and given 1 c.c. of an oral solution designed to remove any ingested oil. They were then placed in a 15′x 20′ room with three inches of wood shavings on the floor. The windows in the room were covered with burlap to prevent the birds from flying into them. Feed and water dishes were set up as described above.

On February 10, 50 more ducks, comprising 36 canvasbacks, 13 redheads and one greater scaup, were picked up and treated generally in the same manner.

On February 19, four canvasbacks and two redheads were placed in an indoor pool, a15′ x 20′ room with an octagonal cement pool 13 feet across and eight inches deep at the deepest point. These ducks became soaked in several minutes and then left the water to preen on the floor which was covered with indoor-outdoor carpeting. The pool was drained, cleaned and refilled daily.

By the next day, these birds were almost completely waterproofed except for a few damp patches on the abdominal areas and around the legs. Theses damp areas disappeared in the days following. The routine continued over the following weeks as birds from the holding room were placed in the pool.

On March 11, 23 birds were taken from the indoor pool room and placed outside in a covered pen 75 x 40 feet. The pen's vegetation consisted mainly of grass, cedar trees and small shrubs. It had a 20′ x 8′ pond and a 10′ x 5′ pond with water up to two feet in depth.

Corn and wheat were placed in the shallow areas of the ponds and the birds were again quick to discover the grain. They had not cared for the lettuce supplied indoors but they fed heavily on the grass around the edges of the ponds.

On March 29, 22 canvasbacks and redheads were banded, transported to the Sombra area and released into a small channel adjoining the St. Clair River. The birds swam towards the river, took flight as a group and disappeared.

On April 1, 19 canvasbacks and redheads were banded and taken to the new Guelph Lake several miles north of Guelph. Upon release, the ducks swam out several hundred feet, took wing and joined other divers far out in the lake. Our remaining four ducks were released on ponds at Niska as it was felt they were not in a fit condition for release with the others. A total of 28 birds had succumbed during the rehabilitation.

Although only 45 ducks were released out of a total of 73 oiled birds we received, the results were considered satisfactory under the circumstances. Some of the problems connected with the salvage of oiled birds were identified. It was proved, as other attempts have proved, that oiled birds can be successfully salvaged.

The species dealt with appear to be more readily rehabilitated than such birds as old squaw, eider and scoter which have more intricate diets and a higher susceptibility to stress conditions and mortality factors.

Refined techniques in salvage procedures are necessary to achieve higher success rates.

Proper facilities are necessary.

Post-release mortality will be important in assessing final results and for this reason all treated birds should be banded before release.

RECOMMENDATIONS

Capture oiled birds as soon as possible.

Do not ship birds together as oil spreads from one to another.

Ensure cleanliness in holding facilities.

Keep birds of similar degree of physical condition together.

The holding room should be as free as possible from windows and other disturbing features.

Different types of bedding should be tried. Wood shavings are not entirely satisfactory.

Several types of holding facilities should be tried – small areas, large areas and avoidance of disturbance.

The pool must be shallow.

An improvement would be the addition of heat lamps ringing the pool

NEW DIKE TO PROTECT DUCKS

An earth dike to protect duck nests near Upper Canada Village is being built and funded by Ducks Unlimited, a private non-profit organization, with the co-operation of the St. Lawrence Parks Commission and the Ministry of Natural Rsources. As announced October 13, 1977, the new dike will stabilize water levels in the marshes and prevent duck nests from being flooded or left dry and exposed by fluctuations in the level of the St. Lawrence River. It will also guard against hazardous spills on the river and aid the growth of protective cover. As designed by Ministry engineers, it will run for 2.4 km (1.5 miles) on the top of an old railway bed now under water. Two more dikes are planned for the marsh area which is owned by the Commission and Ontario Hydro and managed for waterfowl by the Commission and the Ministry.

DISTRESS CODE

If lost or injured in the woods, the standard distress code is a set of three signals of any kind – three smoking fires in a row, three flashes of light or three well-spaced rifle shots. The standard reply is a set of two signals. Add green boughs to a hot fire to make extra smoke. To attract aircraft, write SOS in letters 10 feet high in any material that contrasts with the background.



THE LILY-EATERS *by Dan Strickland**

AS any one who has done any canoe-tripping in Algonquin Provincial Park can tell you, water lilies, *Nymphaea sp.* and *Nuphar sp.*, are spectacularly successful, being found just about everywhere. As a consequence of their abundance, it seems only natural they should be important to wildlife. Frogs use lily pads as hunting platforms, and every fisherman knows that bass like to lurk under their protective cover, but even more important is their use by a host of lily-eaters.

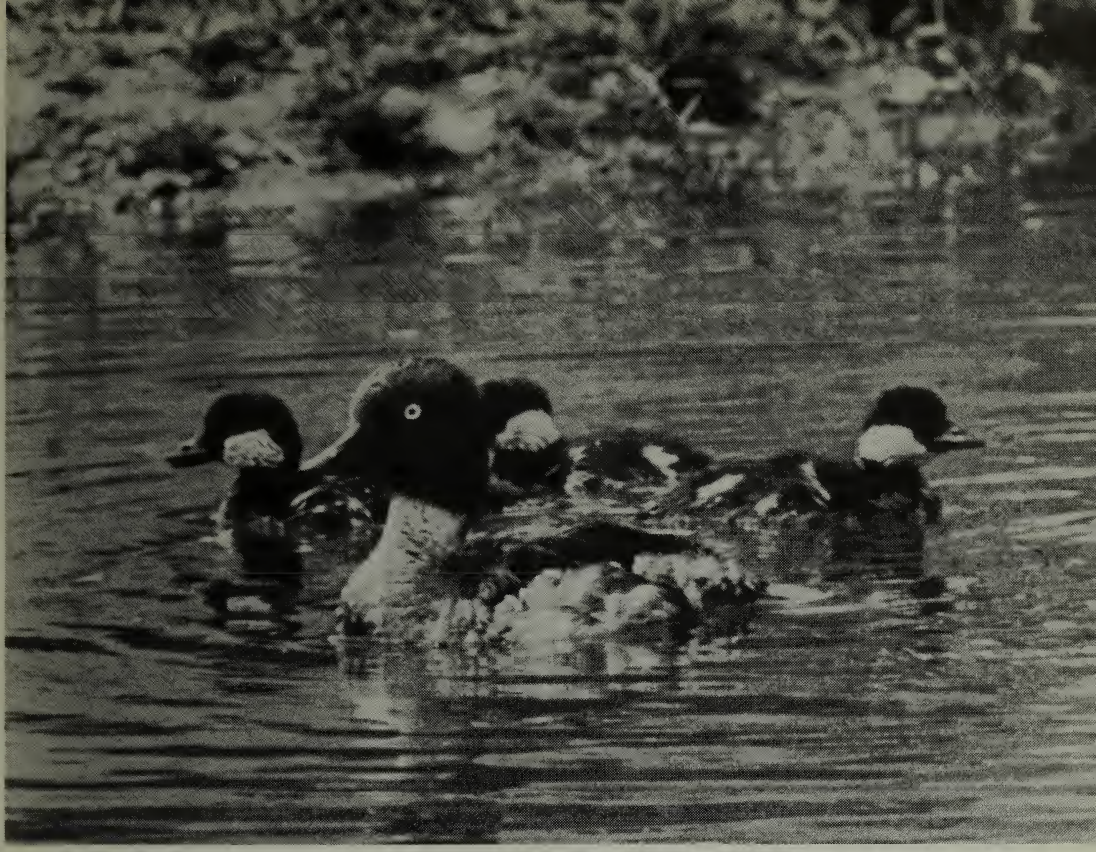
The fact that water-lilies almost always show signs of being chewed on by small insects gives us a hint of their high nutritional value, and this is confirmed by the fact that native Indians used the seeds and rootstalks as food. Moose spend much of the summer browsing on water-lilies and their flowers and stems and they will totally submerge to get at the rootstalks.

The most interesting of the lily-eaters, however, is the beaver. Now, the popular image of a beaver is one of an animal that cuts down trees and eats bark. This picture is accurate in the fall, but throughout the summer many beavers in Algonquin hardly ever go near trees, let alone cut them down. Instead they stay in their ponds and live almost entirely on aquatic vegetation of which by far the most important item is the water-lily, flowers and all.

The relationship between the beaver and water-lilies is particularly interesting because in many cases it is the beaver that creates suitable habitat for water-lilies by damming up a pond for itself. What is more, beavers often spread water-lilies in their ponds by accidentally dropping or discarding pieces of rootstalk they have dug up elsewhere. It is almost as if the beaver were an unintentional farmer.

All this has considerable, if unplanned, importance to the beaver because it means the beaver can spend the entire summer eating nutritious food within the safe confines of its pond and does not have to risk the danger of wolves by going on land to cut down trees. Also, we have never yet heard of a beaver being squashed by a falling lily pad.

* *Condensed from The Raven, Vol. 18, No. 5 — Photo of Algonquin beaver by Wm. Lanning*



Goldeneye with brood. Sometimes the broods become mixed (Lumsden).

GOLDENEYE STUDIES IN NORTHERN ONTARIO

Report and Photos by H. G. Lumsden, R. E. Page and N. Quinn
Fish and Wildlife Research Branch

THE common goldeneye or whistler, *Bucephala clangula,* breeds in scattered localities throughout most of northern Ontario. Its name, whistler, comes from the characteristic whistling sound made by its wings in flight. It is one of the few species of ducks that nest primarily in the boreal forest, and it is also one of the few that nest in tree cavities, usually old woodpecker holes.

The goldeneye is a medium sized duck with a chunky build. Adult males are conspicuous in contrasting black and white in full winter plumage. Their heads are black with a green sheen and a large white spot in front of the eye. The females are less conspicuous with grey, white and dark brown predominating in their plumage. Yearling males are colored like the adult females and do not assume their full adult dress until they are 1½ years old.

The goldeneye in northern Ontario appears to have declined from the 19th Century levels of abundance but it is still an important species in many areas where duck hunting is not particularly good. Probably we can do little to increase the stocks of the more desirable dabbling ducks in the north, but we may be able to increase goldeneye numbers with a nest box program.

For four years the Fish and Wildlife Research Branch has been studying the breeding biology of the goldeneye in the Elk Lake and Cochrane areas of northern Ontario.

The first objective is to find out if the goldeneye population is limited by a shortage of suitable tree cavities and if artificial nest boxes will increase its numbers.

The second objective is to develop the cheapest and most attractive nest box for these birds. This is being accomplished by testing the durability of different materials such as plywood and chipboard, by varying the design of the box and the preservatives used, and by experimenting with features that may influence the duck in its acceptance or rejection of a box as a nest site.

The third objective is to learn as much as

Goldeneye nest boxes are visited at hatching time to band and wing-dye females a



Goldeneye leaves nest box (Page).



Setting nets to trap goldeneyes (



n tiny markers to the wings of ducklings. Twenty-day-old broods above (Lumsden).

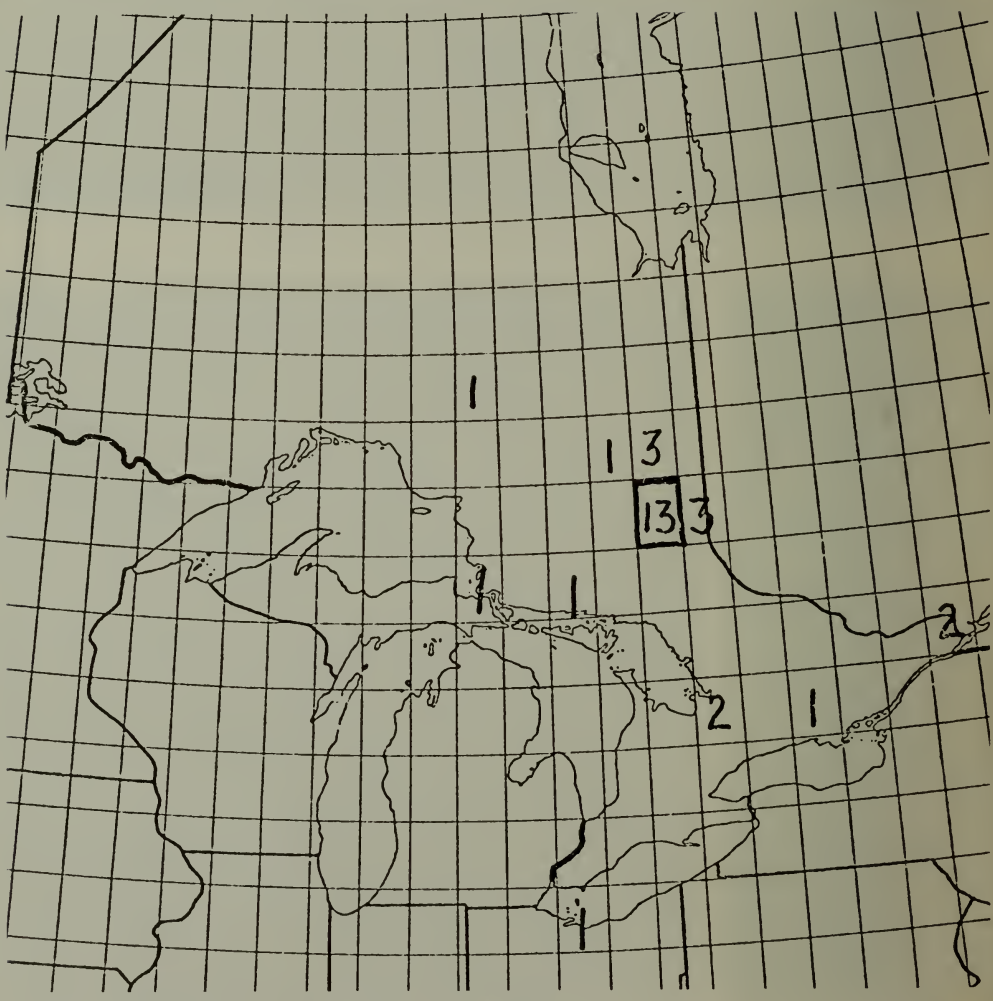




Female's wing is dyed a bright yellow (Page).



A pair of goldeneyes in winter plumage (Lumsden).



Location of goldeneye recoveries as reported by hunters.

possible about goldeneye nesting success, survival of ducklings, brood movements, migration and effect of hunting.

A large number of boxes, arranged in sets of two or three, have been installed on trees near rivers in the Cochrane area and near two lakes in the Elk Lake area west of Englehart.

Each set of boxes presents the duck with a choice of features. For example, on Long Lake, the sets of three boxes offer a choice of a small, medium or large entrance hole. Other tests give the bird a choice of a shallow, medium or deep nest box, or of standard boxes placed 10, 15 or 20 feet above the ground. Pairs of boxes on Elk Lake are identical except for the color of their interiors; one is left unstained while its neighbour is painted black inside.

When these and other tests have been completed we should be able to prescribe the type of box most likely to be accepted by a goldeneye hen for nesting.

The boxes are inspected regularly throughout the spring and early summer to record their use by birds of all kinds.

The hooded merganser, *Mergus cucullatus,* also breeds in the Elk and Long Lakes study area and it also uses tree cavities for its nest. Each year some hooded mergansers have used the boxes. Occasionally a goldeneye and a hoodie will lay eggs in the same box and even hatch each other's eggs and act as foster parents, raising ducklings of the other species.

Sometimes American kestrels, *Falco sparverius,* use the boxes and so do starlings, *Sturnus vulgaris,* and tree swallows, *Iridoprocne bicolor.* We once found a kestrel incubating a clutch of starling eggs as well as her own.

The first nesting dates for most of these species are well spread through the spring and summer, and there is little indication that any of these birds are interfering with goldeneyes.

Some goldeneyes start to lay eggs very early in the spring when temperatures are low enough to crack eggs. Sometimes two ducks may choose the same box and a fight may develop in which eggs are cracked or broken. In a box or in a natural cavity in a tree, the duck must jump down, sometimes a considerable distance, onto the eggs. There is no such thing as climbing down "nice and easy" for a bird of this kind, and thus more eggs are cracked or broken. It is interesting to note that most of the cracked eggs, and they are not uncommon, hatch successfully.

Hooded merganser eggs seldom crack although they are subjected to the same hazards. This duck lays smaller eggs than the goldeneye but the shells are about 35 per cent thicker.

The information collected on goldeneyes gives an estimate of the dates when their nests were started, the span of time during which laying, incubating and hatching took place, nest success, and brood size at hatching. The incubation period seems to vary from 28 to 30 days.

The goldeneye nest boxes are visited at hatching time and the female is caught and banded. The white feathers on her wing are dyed so she can be recognized easily and her later movements checked.

The ducklings are marked with a tiny plastic marker attached to the wing. This permits a check on their rates of growth and also shows if they join the broods of other females. We have seen up to 18 ducklings following a single duck. When banding starts in July, the duckling wing tags show the amount of brood mixing that has taken place.

Goldeneyes dive for their food and eat aquatic insects, small fish and crustaceans. They cannot be caught like many other species of duck by offering them bait such as corn or wheat placed in a funnel trap. They must be captured in drive traps.

Drive trapping starts in mid-July or later in the month depending on the development of the ducklings. Nets are set in the water, generally in weed beds, running out from shore. Broods are driven slowly into the net and the ducks are caught when they become entangled in the net. They are weighed, measured and banded before release.

It may sound easy but goldeneyes, even the small ducklings, are wary. If the drivers make the mistake of pushing the brood too fast, the ducklings will scatter, dive and swim past the boats under water.

So far 355 goldeneyes have been banded in the Elk Lake area. The attached map shows the locations where hunters have reported taking banded birds. The bulk of the recoveries, 13, have come from the square on the map where the goldeneyes were banded. The number is too small to tell us much as yet, but in time the recoveries by hunters will reveal goldeneye movements in more detail and indicate the proportion harvested during the open season.

Forest fires and timber cutting practices have, over the years, removed old, dead and dying trees from much of the breeding range of the goldeneye. Timber management, involving the preservation of stands of trees along bodies of water, will help to restore nesting habitat for cavity nesting birds in the future.

In the meantime, these studies will help us to understand what factors are important to goldeneyes and they may help us to increase their populations in northern Ontario.

AN EARLY SKIRMISH IN THE POLLUTION WAR

by J. A. Macfie
Fish and Wildlife Supervisor, Parry Sound District

FREDERICK George Mackenzie Frazer, federal fisheries overseer, was a man to be reckoned with on Georgian Bay back in the 1880s. At least that is the image projected by a bundle of his papers, covering the period 1884 to 1889, that have been handed down through the various government agencies administering the fishery of the Bay in the intervening years.

Fred Frazer was based at Victoria Harbour and his beat covered Georgian Bay as far north as Parry Sound, according to a directive contained in the papers, but his presence was felt all the way north to the French River at the far end of the 100-mile-long Thirty Thousand Islands belt.

At least two other overseers were stationed on the Bay at the same time. One of them was a Samuel Frazer but if he was a relative, brotherly love was lacking, judging by the tone of a couple of his letters of complaint about Fred to the Deputy Minister of Fisheries in Ottawa. Copies of these were forwarded to Fred for his comments.

In one, Samuel wrote passionately on behalf of a fisherman who, he claimed, by merely neglecting to forward a certain permit with a shipment of fish "laid himself open to the over zealous attentions of Mr. Frazer, a gentleman who himself has been a fish buyer, and therefore acquainted with the arcana of the trade, and herein is the old saying exemplified that it takes etc. etc.". Fred had seized some whitefish shipped in the closed season in spite of the fact Samuel had issued a permit to cover the fisherman's arrival from the far-off Mink Islands fishing grounds a couple of days after the November 1 closing date.

Whether or not territorial jealousy sparked the incident (maybe Samuel had no business issuing a permit for fish taken in another overseer's division, or maybe Fred simply was unaware he had issued it), zeal was a necessary quality for an enforcement officer in those days of salt fish and sailboats, and F. G. M. Frazer had it. Making as much as 40 miles a day in fair weather and hiding behind islands in foul, he patrolled his beat and seized fish, boats and nets (particularly pound nets, which at that time were illegal) when violations were encountered.

On June 24, 1887, the Parry Sound North Star carried the following report:

"The Fishery Inspector, F. G. M. Frazer, seized six boats and over 300 nets from American fisherman at the French River last Saturday. The men claimed to be Canadians and tried to get their boats back by force, but Mr. Fraser swore in a number of the Ontario Lumber Co.'s men as special constables. When the fishermen saw that the Inspector and his men were well supplied with revolvers and determined to enforce the law, the Yankees quieted down."

Likely his work had just begun, for Fraser customarily towed seized boats home, which in this case would entail negotiating nearly 100 miles of treacherous water. Late in the previous November while running before a gale through reef-strewn water off Beausoleil Island, he lost first his rudder and then, when she drove up on a rock, his entire sailboat, "Nellie", for which the Department of Fisheries later awarded $150 in compensation. Georgian Bay was producing two million pounds each of lake trout and whitefish annually, a substantial part of it from Frazer's jurisdiction. But the outstanding case he handled in those years, in terms of the bulk of paper accumulated, had to do not with illegal fishing but with pollution.

In those days saw mills, with their vast output of sawdust, were the biggest threats to water quality. One of the chief producers of sawdust in Frazer's patrol was the Muskoka Mills and Lumber Company which had the entire mouth of the Muskoka River in harness to turn the wheels of three mills. On November 20, 1884, Trueman Aldrich, mill foreman, was called before Frazer at Victoria Harbour and fined $50 and $10.10 costs for allowing sawdust to escape into the Muskoka River and onto the spawning beds of various kinds of fish. According to an affidavit filed later by Aldrich, it was as simple as that — no summons was issued, no testimony was given and no questions were asked. He was just fined.

Frazer reported the matter to Ottawa and got a quick reply from the Deputy Minister of Fisheries telling him he hadn't gone about it in the right way, and instructing him belatedly in the mysteries of prosecution. Muskoka Mills threw its considerable weight into an appeal. The company won an order from the Supreme Court of Ontario to examine the regularity of the manner in which the case was conducted, and its counter-attack was reinforced by 13 affidavits. These were filed mostly by company men, ranging in rank from bookkeeper to president, to show the alleged offence had not in fact occurred.



The 1896 fishing fleet of "Chesapeake Bugeyes" at the Bustard Islands. The tender is believed to be a fish buyer's boat. — Courtesy, Parry Sound Public Library.

Muskoka Mills invoked the law of gravity as a vehicle for its main argument. Several deponents, who had known the Muskoka River mouth before it was damned, or who helped build or worked in the mills, declared the mills were founded on the bedrock bottom of Georgian Bay — so how could sawdust fall from them into the Muskoka River as alleged?

It was further argued that in any event only an inconsequential amount of sawdust was falling into moving water where fish might come to spawn, and that was unavoidable in a water mill. Power, it was explained in several affidavits, was transmitted from water wheel to saw through a pitman rod working up and down from beneath the mill floor. A trough caught the bulk of the sawdust falling from the cut and sluiced it a quarter-mile to still water, but a little was bound to find its way through the necessary slot in which the pitman rod oscillated, where it joined the water churning off the wheel. This and a bit more that found its way into moving water from the platform where lumber was loaded into scows, it was submitted, hardly amounted to indiscriminate dumping of sawdust on a spawning bed.

The appeal court's ruling is not included in the papers, but the following final page (the rest is missing) of a letter to Frazer from the Deputy Minister of Fisheries infers the conviction was quashed:

"... ($50.00) which had been held in deposit was refunded to the Defendent thro' his attorney J. H. Mayne Campbell, and in addition thereto, this Department had to pay some $78.00 for costs.

"No fine having accrued to Her Majesty, it is evident that the complainant is not entitled to a share thereof under Sub-sec. 5 of Sec. 17 of the Fisheries Act.

"I am to instruct you to take no further proceedings in this matter except under directions from this Department."

But evidently Fred Frazer saw the reversal coming and arranged to come out on top by laying a second charge. In a judgment dated June 6, 1886 *(likely before the appeal court handed down its decision on the original case),* he again found Muskoka Mills guilty of allowing sawdust and mill rubbish to pass into water frequented by fish, on a certain date in the previous year. This time Frazer rallied the support of an independent witness and alleged the stuff was dumped into Georgian Bay, not the Muskoka River. The fine was $100, double the penalty that failed to stick, plus $1.90 in costs awarded to the informant.

All seems to have been quiet on the sawdust front until late in the following year when Frazer's journal notes sawdust "in a very loose state on the cliff" at Muskoka Mills, and "no effort being made to prevent it going into the water." So the mill had stopped sluicing sawdust to deep water and disposed of it on land

instead, but it was still finding its way into the water. The fact was duly reported to Ottawa *(as he had been instructed to do)*, and John Filton, Deputy Minister of Fisheries, replied in a letter dated October 8, 1886:

"With reference to sawdust at Muskoka Mills I am to call your attention to the fact that the STATUTE 49 VIC. CAP. 36, Sec. 7 – copies of which have already been sent to you – provides a remedy in such cases by prohibiting the throwing of sawdust into any river or stream flowing into any navigable water."

Back to square one.

Since there is no further mention of sawdust in Frazer's surviving papers, it is reasonable to surmise he decided to forget pollution and go back to guarding the Georgian Bay lake trout, which at that moment would be starting to drift like great grey ghosts up onto the cobblestone spawning beds lying to windward of the 30,000 Islands.

30 DAYS AND $500

Three Ontario fishermen received 30-day jail sentences and $500 fines in Provincial Court in Meaford, Grey County. They had been apprehended by conservation officers on May 2, 1977, with 101 rainbow trout taken from Indian Brook with a net.

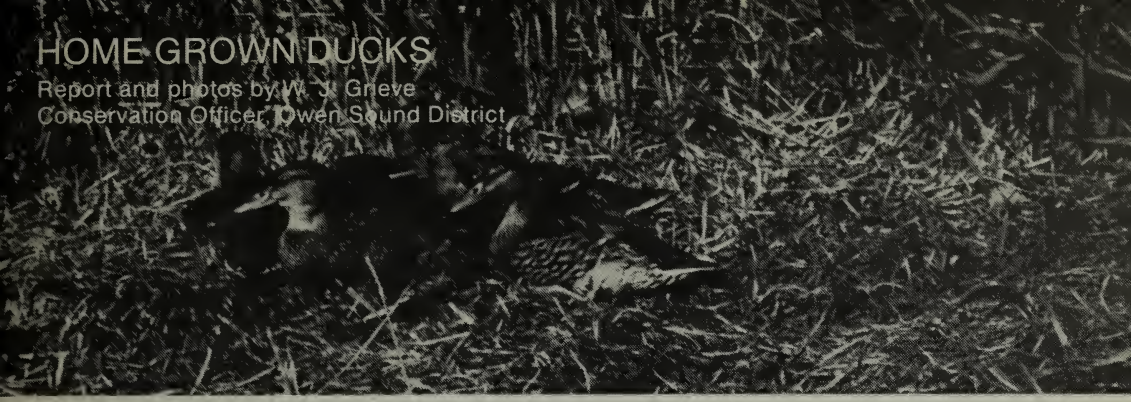
BRUCE DEER UNDER PRESSURE

From 1971 to 1976 the deer hunter density doubled on the Bruce Peninsula while the hunting success rate declined from 22.8 to 14.7 per cent.

– Owen Sound District



Home grown ducks were released in management area after two days in pen but they returned to the pen at night. Right: home grown ducks after banding.



HOME GROWN DUCKS

Report and photos by W. J. Grieve
Conservation Officer, Owen Sound District

THIS is the story of two abandoned mallard duck broods, their raising in a private home and small yard, their release at Isaac Lake in Rankin Provincial Wildlife Area, and their later return and nesting success.

On June 3, 1975, a brood of 10 mallard ducklings was rescued on Highway 6 south of Wiarton after the hen was hit by a car. They were taken to the author's residence on June 5 and brooded on a heating pad.

Two died within a few days. The remaining eight adapted extremely well to eating duck-starter crumbles and water-soaked bread, swimming in the bath tub, and being dried in bags made from towelling. They were eventually moved outside to a small pen.

By July 10 when the ducklings were three-quarters grown and feathering out, they were moved to the management area at Isaac Lake where they had access to water. They were placed in the small pen which is within the larger enclosure.

After two days the young ducks were allowed to use the entire enclosure and they returned to the pen at night for shelter and supplemental food. After another two days, two were killed by owls on the enclosure island.

Changes were noted every day. The ducks stayed outside at night and returned less often to the pen for food. On July 31 the six were banded and released.

By now they were roaming the entire goose enclosure but were somewhat behind their wild counterparts in development. The naturally raised ducks of the same age were already flying. These ducks spent a great deal of time in water and very little time on land whereas our semi-domesticated ducks had not yet attempted flight and walked almost everywhere they went. This terrestrial behaviour was likely the result of spending their early life without an abundance of water.

First flight was not attempted until August 7 when the ducks were startled by the accidental dropping of a canoe and in their fright they flew over the eight-foot fence into the large duck enclosure. They then mixed freely with the other ducks, flying about, but still retained their terrestrial behaviour. In late October all the ducks left the area.

The following spring a number of mallards returned to the enclosure and one group of five with bands was much tamer than the others although terrestrial behaviour was not evident. As banded mallards had never been observed at Isaac Lake before, it seemed reasonable to assume that they were "our" ducks.

Eventually one of the banded females nested in a tire on one of the goose nest rafts within 20 feet of the original release site. She laid nine eggs and hatched out eight by July 7. Three weeks later she left the small enclosure with six ducklings.

On July 6, 1976, a second brood of ten mallard ducklings was abandoned near Howdenvale when the hen was apparently chased away by dogs. These ducklings were raised in the same manner as the first brood. They were banded and released on August 14.

One duckling became crippled and disappeared. The remaining nine were as tame as their predecessors of the year before but much less terrestrial. They mixed with the wild ducks and left the area with them in mid-October.

Owing to the pressure of enforcement duties, the return of banded ducks was not observed at Isaac Lake in the spring of 1977. By June 8, however, five banded female mallards were within the enclosure and raising broods of two, six, seven, eight and eleven ducklings. On July 1 one duck was still tame enough to walk up to within 15 feet of the author to be fed.

While the original intent was to rescue two broods of ducks, it is interesting that the work has resulted in an increase in the number of mallards breeding in the area. In fact the numbers of ducklings within the confines of the enclosure is greater than the number observed during two years of studies on the remainder of the Rankin Provincial Wildlife Area.

These informal observations suggest that "home grown" ducks, carefully returned to the wild, do not appear to be as susceptible to natural and hunting mortality as one might think.

FISHING FOR FLAVOR — LAKE WHITEFISH

by C. R. Jorgensen
Biologist, Lake Nipissing Fisheries Assessment Unit

THE lake whitefish, *Coregonus clupeaformis* (Mitchill), is a member of the salmon family and also known as Great Lakes whitefish and common whitefish. Its body is deep and laterally compressed and so it is easily distinguished from the round whitefish which is a different species. The color is silvery and the scales are large and easily removed.

Ciscoes are often mistaken for whitefish, but a quick inspection will enable an angler to tell the difference. The rounded blunt snout of the whitefish distinctly overhangs the lower jaw while the mouth of the cisco has an angular profile.

Basically bottom feeders, lake whitefish feed on small molluscs, aquatic insect larvae and small fishes. They are found in shoal waters most of the year, dispersing to deeper waters only as the shallow water becomes warm during the summer months. They mature at three to five years of age and spawn in October and November when the shoal waters have cooled.

Whitefish are important to the Ontario commercial fishing industry and they are becoming increasingly popular with anglers who realize these fish can provide excellent recreation, especially in winter. Ice fishing is usually conducted where the water is 15 to 40 feet deep.

In summer the whitefish angler should fish in the cool, deep water of the lakes while in the fall, shallow water and mouths of rivers are considered likely whitefish angling grounds.

Winter whitefish anglers pre-bait their fishing area with salted minnows. Cooked rice, wheat and other grains may also be used to attract whitefish. After pre-baiting, anglers use special spreader rigs baited with small minnows. They fish well into evening and good catches of whitefish of from four to nine pounds are not uncommon. At other times of the year, bottom fishing with live minnows is most successful.

Whitefish are easy to scale. Once scaled and gutted, they are ready to be baked. They may also be filleted.

The fine flavor of whitefish has been appreciated for centuries and never loses its appeal. Whitefish liver can be made into excellent pate. Whitefish eggs, properly prepared, are sometimes marketed as caviar.

THE WHITEFISH COOKERY

Whitefish With Orange Rice Stuffing
1 whitefish, 3-4 lbs.

Stuffing:
¼ cup butter
1 cup chopped celery with leaves
3 tbsp. chopped onion
2 tbsp. grated orange rind
½ tsp. salt
½ cup orange juice
¾ cup water
1 cup minute rice

Wash and dry the fish, sprinkle with salt. Melt fat in saucepan, add celery, onion and orange rind. Cook until tender, add salt, orange juice, lemon juice and water. Bring to rolling boil and add rice. Stir to moisten, cover and remove from heat, let stand 5 minutes. This makes a moist stuffing, but excess moisture is absorbed in baking the fish.

Stuff fish loosely and fasten opening with skewers, place on greased baking pan and brush with melted butter. Bake at 450 degrees. Measure stuffed fish at the thickest part and allow 10 minutes for each inch across.

Whitefish Broiled With Wine
1 whole whitefish
Butter, salt and pepper
1 tbsp. lemon juice
1 medium onion, sliced thin
1 cup dry white wine
1 tbsp. flour
3 tsp. water
6 sliced stuffed olives

Split whole fish lengthwise for broiling. Place in buttered broiler pan, skin side down. Sprinkle with salt, pepper, lemon juice.

Arrange onion slices over whole and dot with butter. Place under broiler 5-6 inches from heat. Broil, basting frequently with wine until fish flakes easily. Combine water and flour to thicken juices in pan. Add olives to sauce before serving.

DIPPING FOR WHITEFISH

The fall weather brings out people who enjoy the very cold, wet sport of dipping for whitefish. The resident angler has to purchase a dip net licence for $2 and this entitles him to use a dip net and a light to capture whitefish for his personal use. Whitefish are fall spawners and just before freeze-up they can be found on sandy shoals or in inlets where there are rapids or shallow water over a gravel or sandy bottom.

— R. E. Jerrard, White River District



Ice fishermen prize lake whitefish. — Photo by T. Jenkins.